HOW OMS ITEMS ARE ANALYZED
May 2016

This document is part of several training modules created to assist in the interpretation and use of the Maryland Behavioral Health Administration Outcomes Measurement System (OMS) data. This module provides readers with a detailed description of OMS analytic strategies. It is <u>not</u> necessary to read this module prior to using the OMS Datamart or using the OMS Statistical Significance Workbooks. Rather, it is available for those who might be interested in additional background information on OMS analyses.

The Datamart presents data for four service groups:

ALL - those receiving <u>either</u> mental health <u>or</u> substance-related services
MENTAL HEALTH (MH) - those receiving mental health services, whether or not they received a substance-related disorder service
SUBSTANCE-RELATED DISORDER (SRD) - those receiving substance-related disorder services, whether or not they received a mental health service
BOTH - those receiving <u>both</u> mental health <u>and</u> substance-related disorder services

Data on MH services has been gathered since September, 2006; however, data collection on SRD services began in January 2015. Hence, data presentation for any group that includes the SRD service population (this includes All, SRD, and Both) begins with FY 2015 and includes only six months of data. Subsequent fiscal and calendar years will include full year data for all groups.
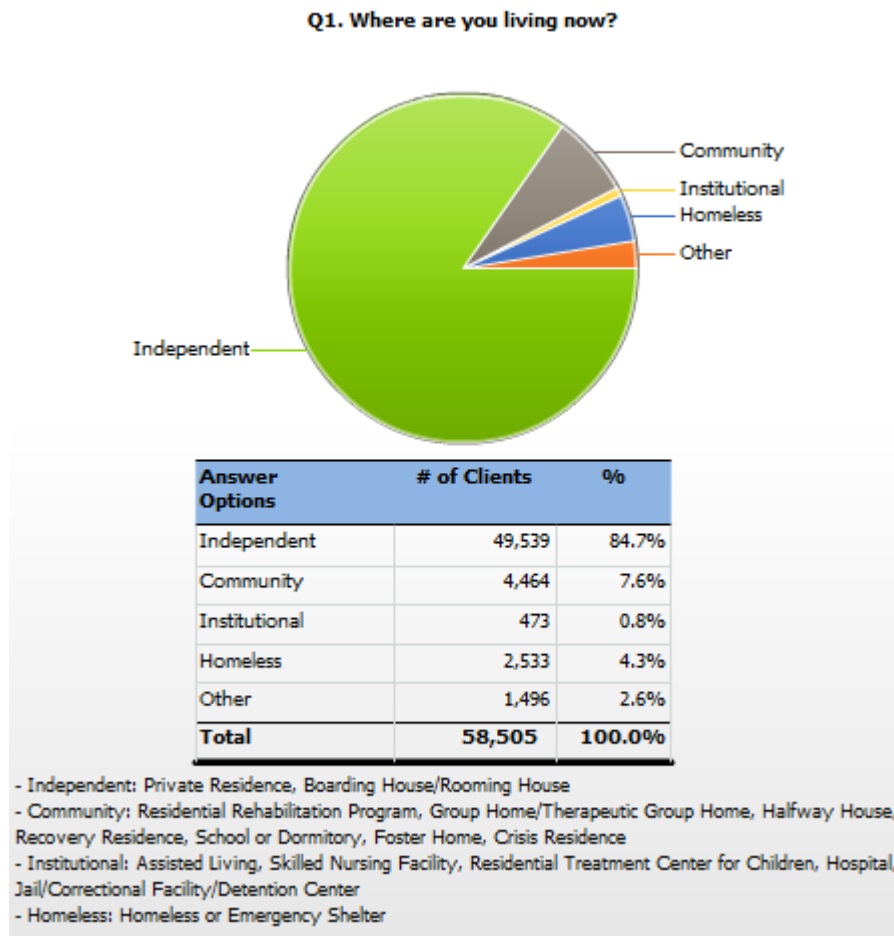
There are two ways in which the OMS data is presented in the Datamart:

- **Most Recent Interview Only** (also known as **"Point In Time"** or **"PIT")** – presents aggregated responses from clients' most recent OMS interviews within the level of analysis chosen (i.e., Statewide, CSA, Agency) for the time period chosen (e.g., Fiscal Year 2012).

  Initial Interview Compared to Most Recent Interview (also known as **"Change Over Time"** or **"COT")** presents aggregated comparisons of clients' most recent interviews to their initial interviews within the level of analysis chosen (i.e., Statewide, CSA, Agency) for the time period chosen (e.g., Fiscal Year 2012). Only these two points are analyzed using the Datamart – the initial interview and the most recent interview. The most recent interview will be determined by the time period chosen by the Datamart user. It is important to note that COT data for the All, SRD, and Both groups will not be available until enough time has elapsed for a sufficient number of clients receiving SRD services to complete two OMS interviews.

Most Recent Interview Only or "Point In Time (PIT)" Analyses

The Most Recent Interview Only data analyses are relatively straightforward. For most items, the analysis is the number and percentage of individuals responding to the question for each possible answer option. For example, the results for the homelessness question will show the number and percentage of individuals who answered "No" and the number and percentage answering "Yes." If an individual has more than one OMS interview in the time period selected, then the most recent one is included in the analysis. The screen shot below is an example of how PIT data is presented on the Datamart.

Q1. Where are you living now?

Answer Options	# of Clients	%
Independent	49,539	84.7%
Community	4,464	7.6%
Institutional	473	0.8%
Homeless	2,533	4.3%
Other	1,496	2.6%
Total	**58,505**	**100.0%**

- Independent: Private Residence, Boarding House/Rooming House
- Community: Residential Rehabilitation Program, Group Home/Therapeutic Group Home, Halfway House, Recovery Residence, School or Dormitory, Foster Home, Crisis Residence
- Institutional: Assisted Living, Skilled Nursing Facility, Residential Treatment Center for Children, Hospital, Jail/Correctional Facility/Detention Center
- Homeless: Homeless or Emergency Shelter

The **"Counts"** tab for the PIT analyses represents the number of individuals who completed OMS questionnaires within the parameters selected, regardless of how many questions they answered. The number of individuals included in some of the analyses is smaller than the "Counts" tab number due to skip patterns or individuals choosing not to answer questions.

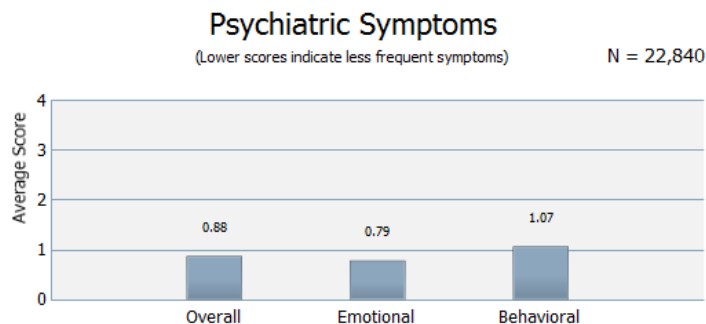<div style="border: 2px solid orange; border-radius: 15px; padding: 10px;">

SUMMARY

➢ **The PIT analysis for most questions is the number and percentage of individuals responding to each possible answer option for the question.**

➢ **The "Counts" tab represents the number of individuals who answered OMS questionnaires within the selected parameters.**

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There are several items that are analyzed a bit differently in PIT and are not just presented as the number and percentage of clients for each response option. These include:

- Psychiatric Symptoms
- Functioning, Recovery, Resilience
- Substance Abuse BASIS-24® Questions (adults only)
- Substance Use CRAFFT Questions (children and adolescents only)
- Other tobacco product use
- Recent Employment Status
- Body Mass Index (adults only)

Psychiatric Symptoms

For both children/adolescents and adults, information on psychiatric symptoms is gathered using instruments made up of multiple subscales, with a few items in each scale. An overall score as well as various subscale scores are calculated. For each of these, a score is calculated for each interview and then the average of the scores across the group is determined.

Psychiatric Symptoms

(Lower scores indicate less frequent symptoms)   N = 22,840

	Average Score
Overall	0.88
Emotional	0.79
Behavioral	1.07

Psychiatric Symptom Questions (Q3 - 23)
In the past week, on how many days…
3. Did you have trouble falling asleep or staying asleep?
4. Did you feel depressed or sad?
5. Did you have trouble relaxing?
6. Were you nervous, uptight, or worried?
7. Did you worry about your safety?
8. Were you irritable or grouchy?

- Display of this domain is not available prior to 2015
- An overall and two subscale scores are calculated from these questions
- Questions 3-23 developed by Dr. Laurel Kiser; © University of Maryland, Baltimore 2005

Data through: 05/13/2015

Functioning, Recovery, Resilience

For functioning, recovery (adults), and resilience (children and adolescents), an overall score is calculated in addition to the number and percentage of clients responding to each option.
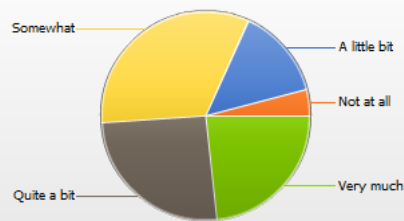
Recovery

	Very much		Quite a bit		Somewhat		A little bit		Not at all		Total
	#	%	#	%	#	%	#	%	#	%	#
Q 4	7,714	23.3%	8,526	25.7%	10,862	32.8%	4,709	14.2%	1,354	4.1%	33,165
Q 5	7,715	23.3%	8,333	25.1%	10,401	31.4%	5,067	15.3%	1,644	5.0%	33,160
Q 6	3,873	11.7%	7,765	23.5%	13,138	39.7%	5,913	17.9%	2,395	7.2%	33,084
Q 7	6,288	19.0%	8,693	26.3%	10,811	32.7%	5,260	15.9%	2,007	6.1%	33,059
Q 8	5,690	17.2%	7,009	21.2%	10,679	32.4%	6,021	18.2%	3,606	10.9%	33,005

MARS 5 Score = 3.33
(Higher scores indicate greater recovery: range is 1-5)

Q4. I am confident that I can make positive changes in my life.

- Questions asked beginning January 2015
- An overall score is calculated from these questions
- Items 4-8 are from the Maryland Assessment of Recovery Scale-Short Form; used with permission (Drapalski, et.al, 2012)
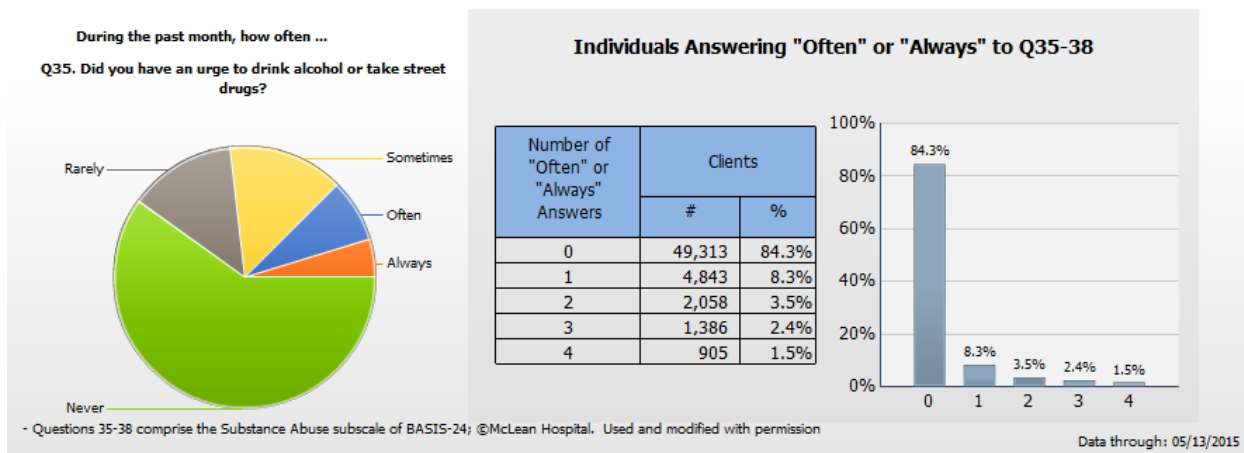
Data through: 05/13/2015

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<u>Substance Abuse BASIS-24® Questions (adults only)</u>
The Substance Use domain of the OMS Datamart (Adult Questionnaire) presents data on the four BASIS-24® questions related to problems associated with substance use.

Two approaches to analyzing the data are included on the Datamart. Similar to the other PIT items, the number and percentage for each response option are presented. In addition, the number and percentage of individuals answering "often" or "always" to zero, one, two, three, or four of these questions are displayed.
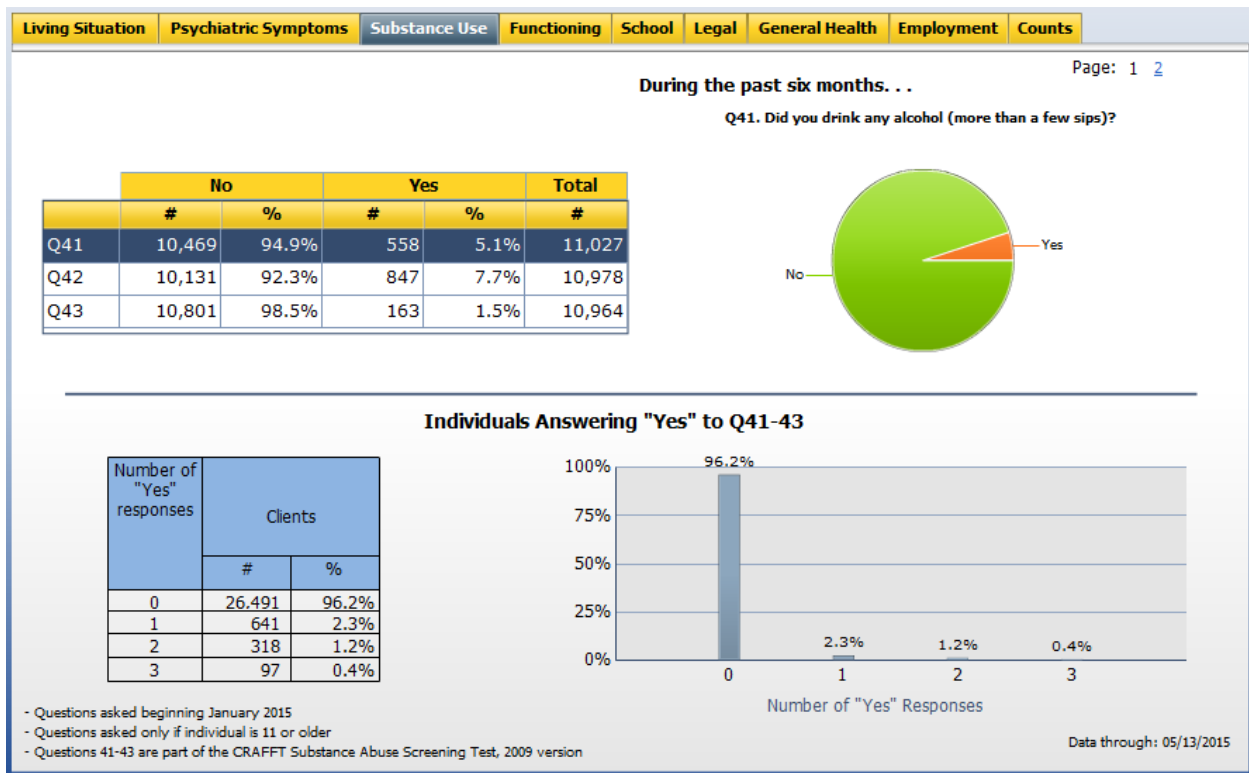
Living Situation	Psychiatric Symptoms	Substance Use	Recovery & Functioning	Legal	Employment	General Health	Counts

	Never		Rarely		Sometimes		Often		Always		Total
	#	%	#	%	#	%	#	%	#	%	#
Q 35	27,294	59.9%	6,052	13.3%	6,514	14.3%	3,543	7.8%	2,157	4.7%	45,560
Q 36	33,538	74.1%	3,047	6.7%	3,800	8.4%	2,725	6.0%	2,171	4.8%	45,281
Q 37	38,572	85.3%	1,912	4.2%	2,151	4.8%	1,175	2.6%	1,427	3.2%	45,237
Q 38	36,908	81.7%	2,193	4.9%	2,520	5.6%	1,623	3.6%	1,916	4.2%	45,160

During the past month, how often …

Q35. Did you have an urge to drink alcohol or take street drugs?

- Questions 35-38 comprise the Substance Abuse subscale of BASIS-24; ©McLean Hospital. Used and modified with permission

Individuals Answering "Often" or "Always" to Q35-38

Number of "Often" or "Always" Answers	Clients	
	#	%
0	49,313	84.3%
1	4,843	8.3%
2	2,058	3.5%
3	1,386	2.4%
4	905	1.5%

Data through: 05/13/2015

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<u>Substance Use CRAFFT Questions (children and adolescents only)</u>
The Substance Use domain of the OMS Datamart (Child and Adolescent Questionnaire) is comprised of the CRAFFT Substance Abuse Screening Test (questions 41-49 in the questionnaire). The questions are only asked of youth 11 years old and older.

The data for this domain is presented across two pages. The first page includes the number and percentage for each response option for each of the three questions regarding use of substances. It also includes the number and percentage of individuals answering "yes" to zero, one, two, or three of these questions as illustrated in the screen shot below.

Page 2 of this domain displays the numbers and percentages for each response option for every question in the CRAFFT (Questions 41-49). Please note that questions Q45-49 are <u>only</u> asked if there is a "yes" response to Q41, 42, or 43; therefore the number of clients for Q45-49 will be significantly lower.

| Living Situation | Psychiatric Symptoms | **Substance Use** | Functioning | School | Legal | General Health | Employment | Counts |

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	No		**Yes**		**Total**
	#	%	#	%	#
Q41	10,469	94.9%	558	5.1%	11,027
Q42	10,131	92.3%	847	7.7%	10,978
Q43	10,801	98.5%	163	1.5%	10,964
Q44	12,633	95.0%	665	5.0%	13,298
Q45	2,683	75.7%	860	24.3%	3,543
Q46	2,899	82.0%	638	18.0%	3,537
Q47	3,184	90.3%	341	9.7%	3,525
Q48	2,888	81.9%	638	18.1%	3,526
Q49	3,100	88.3%	410	11.7%	3,510

During the past six months. . .

Q45. Did you use alcohol or drugs to relax, feel better about yourself, or fit in?

- Beginning January 2015, questions asked if individual is 11 or older
- Begining January 2015, questions 45-49 are only answered by individuals responding "Yes" to Q41, 42 or 43.
  (previously, all individuals 12 or older were asked these questions; therefore comparisons to prior years is not possible)
- Questions 41-49 comprise the CRAFFT Substance Abuse Screening Test, 2009 version

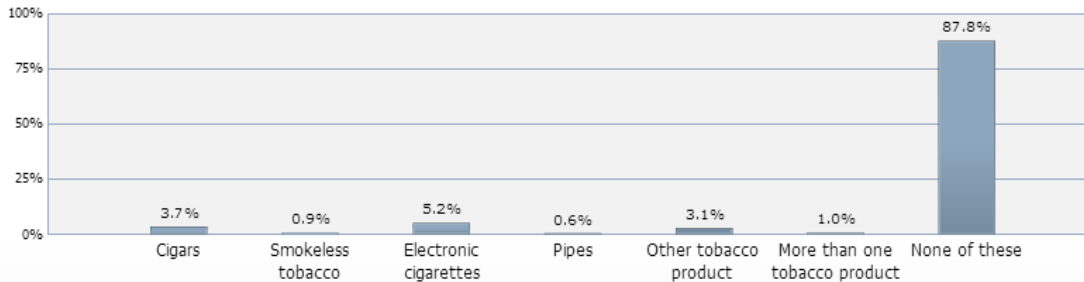Data through: 05/13/2015

SUMMARY

In the "Substance Use" tab, in addition to the number and percentage for each response option, the number and percentage of individuals who answered "often" or "always" (adult questionnaire) or "yes" (child and adolescent questionnaire, Qs 41-43) are also displayed.

Other Tobacco Use

An individual may indicate use of one or more of the alternative tobacco products or can respond "None", indicating no use of any of these other tobacco products. The number and percentages for use of each product are presented. Because it is possible for an individual to endorse more than one tobacco product, the percentages may sum to more than 100%.

Q47. In the past month did you use any of the following tobacco products?

Answer Options	# of Clients	%
Cigars	1,709	3.7%
Smokeless tobacco	423	0.9%
Electronic cigarettes	2,435	5.2%
Pipes	280	0.6%
Other tobacco product	1,421	3.1%
More than one tobacco product	458	1.0%
None of these	40,804	87.8%

- Question asked beginning January 2015
- Percentages may not sum to 100% because respondents could endorse more than one option

Data through: 10/27/2015

Recent Employment Status

Recent employment status is also calculated by combining the responses to two items:

- Are you currently employed?
- Have you been employed in the past six months?

The combined analysis may be seen on the right –hand display under the Employment tab in both the Adult and Child and Adolescent sections of the Datamart. The employment questions are asked only of those who are age 14 years or older.

Body Mass Index (adults only)

Body Mass Index (BMI), a commonly used measure of health status, is included for adults in the OMS Datamart. The BMI is calculated using the height and weight reported by individuals during their OMS interview. Based on national standards, individuals are then classified into one of four categories: Normal, Underweight, Overweight, and Obese.

Initial Interview Compared to Most Recent Interview Only or "Change Over Time (COT)" Analyses

There are several components to understanding how the OMS data is analyzed for the Datamart for the "Initial Interview Compared to Most Recent Interview" analyses (also known as "Change Over Time" or "COT"). These include:
1. the inclusion criteria for analysis,
2. a description of the types of approaches used for analyzing the data, and
3. special situations.

Inclusion Criteria

To be included in the Change Over Time Analyses for a particular item displayed on the OMS Datamart, the following criteria must be met:
1. Clients must have completed an OMS interview within the time period selected (CY or FY) in the "Start Your Analysis" section of the Datamart.
2. Clients must have at least two of the same type of OMS questionnaire (child/adolescent or adult) administered consecutively. If a youth client turns 18 and begins completing the Adult Questionnaire, the data from their previous Child and Adolescent Questionnaire(s) will not be included with the Adult Questionnaire data analyses.
3. The questionnaires must be completed at the same agency at each administration during a period of consecutive authorization for the same type of care (i.e., mental health or substance abuse). This is also called an "episode of care".

Once all three of these selection criteria are met, "Initial Interview" and "Most Recent Interview" OMS interview pairs are selected by identifying the most recent OMS questionnaire in the time period selected. Time periods available for selection include calendar years and fiscal years. Then, the earliest OMS for that item is identified by finding the OMS interview with the earliest date (still meeting the criteria above).

The initial interview is always the same for an individual for an episode of care, unless a particular item was not included in the initial interview. For example, for a client whose initial interview was conducted before September, 2009 when there was not a satisfaction with recovery item in the questionnaire, the response in the first questionnaire after August 31, 2009 would be used in any analysis of the satisfaction with recovery item. Similarly, for a client whose initial interview was conducted before December 13, 2014, when there was not a question regarding use of other tobacco products, the response in the first questionnaire after December 13, 2014, would be used in the analysis of this item.

It is important to note that only two points in time (initial and most recent interviews) are analyzed using the Datamart. For example, if a client had several OMS interviews in the OMS system with the same provider (June 2011, December 2011, June 2012, and December 2012), only the initial and most recent interviews would be included in the analysis depending on the time period chosen by the Datamart user. The initial interview included in the COT analyses for this client would always be the June 2011 interview. If the Datamart user chose Fiscal Year 2012 as the time period (which ends June 30th, 2012) then the June 2012 interview would be the "most recent interview." However, if the user chose Calendar Year 2012, then the December

2012 interview would be included as the "most recent interview" in the analysis. Thus, the selection of a time period affects the most recent interview data used in the analysis, but the initial interview data for an individual remains constant. For those individuals who have been served by the same provider for a long time, the interval between initial interview and most recent interview might be several years.

Analysis is conducted on a question-by-question basis. If either the initial or most recent interview has missing data for a particular question then that interview pair will not be included in the COT analysis for that particular question. For example, if a client answered the question about general health during both interviews, but did not answer the question about satisfaction with living situation during one of the interviews, then the interview pair would be included in the analysis for the general health question, but not for the satisfaction with living situation item.

There are also some items which require specialized analytical approaches. These include items added to the questionnaires in 2009 or 2015, items asked only of certain age groups (i.e., those 11 or older; those 14 and older), and items which function as an "inherent COT." More detail about these special situations is included later in this section.

The "Counts" tab for the COT analyses represents the number of individuals who completed both the initial and most recent OMS questionnaires within the parameters selected, regardless of how many questions they answered in either interview.

SUMMARY

- ➢ **The Change Over Time (COT) analysis can be conducted if the client has at least two of the same type (age group) of OMS completed questionnaires at the same provider agency within the same episode of care.**

- ➢ **The "Most Recent Interview" is determined by the time period selected (CY, FY). The initial interview remains constant.**

- ➢ **Analysis is conducted on a question by question basis; hence it excludes a question if it has not been answered in one of the interviews.**

- ➢ **In the COT analyses only two points in time can be analyzed and the interval between those two might differ among clients.**

COT Analytic Approaches

There are three categories of approaches to analyzing the COT data for the Datamart. These are based on the response options for the questions included in the OMS Questionnaires and apply to both the Adult and Child and Adolescent Questionnaires. The categories are:

Category A: Yes/No Questions
Category B: Increased/Decreased Questions
Category C: Numerical Scale Scores

Each of these is described in more detail below. Please see Appendix A for a full listing of all questions, their COT analytical categories and special considerations.

Category A: Yes/No Questions

Category A includes those questions with either "Yes" or "No" as the possible response options. The analysis is conducted by grouping the interview pairs into the combination of the responses given at their initial interview and their most recent interview so that four groups are formed:
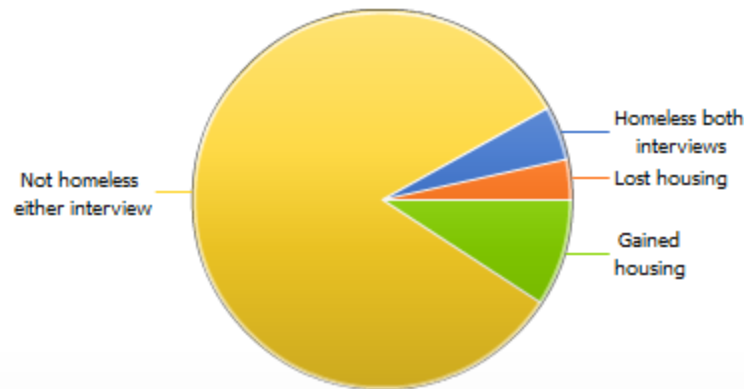- Yes-No
- Yes-Yes
- No-Yes
- No-No

To illustrate further, the "Yes-No" group includes those interview pairs that answered "Yes" to the item during the initial interview and "No" to the question during their most recent interview. Depending on the question, each group is then assigned an outcome label to represent the change over time.

Yes-No Analysis Example
One of the Yes-No items is the homelessness question. As seen below, it is analyzed as follows and assigned outcome labels appropriate to the question are:
- Gained housing (Yes-No)
- Not homeless either interview (No-No)
- Homeless both interviews (Yes-Yes)
- Lost housing (No-Yes)

Q3. Have you been homeless at all in the past six months?

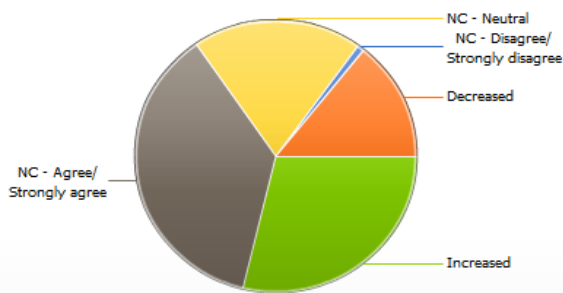| Outcomes	# of Clients	%
Gained housing	2,017	9.2%
Not homeless either interview	18,175	82.7%
Homeless both interviews	1,021	4.6%
Lost housing	761	3.5%
Total	**21,974**	**100.0%**

Data through: 05/13/2015

SUMMARY

➤ **Category A includes questions with "Yes" or "No" answer options.**

➤ **The analysis is conducted by grouping the interview pairs into four combinations of responses options and assigning an outcome label to each.**

Category B: Increased/Decreased Questions

Category B includes those OMS questions that have five possible answer options (with two variations, described below) and are analyzed in such a way as to indicate whether the OMS outcome increased or decreased over time. For example, child and adolescent functioning may increase across interviews or decrease across interviews.

Functioning

Functioning Questions (Q24-28, 30)

| 24. I am able to handle daily life. |
| 25. I get along with family members. |
| 26. I get along with friends and other people. |
| 27. I am doing well in school and/or work. |
| 28. I am able to cope when things go wrong. |
| 30. I am able to do things I want to do (and am allowed to do). |

- An overall score is calculated from these questions

Outcomes	# of Clients	%
Increased	4,662	28.8%
No change - Agree/Strongly agree	5,928	36.6%
No change - Neutral	3,166	19.6%
No change - Disagree/Strongly disagree	130	0.8%
Decreased	2,307	14.2%
Total	**16,193**	**100.0%**

Data through: 05/13/2015

Although each Category B item has five possible answer options (with two variations, described below), the actual type of response options differ across some of the items. They include:
- Very much to Not at all (applies only to Adult Questionnaire) – living situation satisfaction; functioning; employment satisfaction; and recovery satisfaction.
- Strongly Agree to Strongly Disagree – functioning (children and adolescents)
- Rarely to Always – substance use (adults).
- Do Not Smoke Every Day to 30+ Cigarettes a Day - number of cigarettes smoked (adults; children and adolescents).
- Poor to Excellent – health status (adults; children and adolescents).

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There are TWO VARIATIONS included in this Category B:

- o Child and Adolescent Substance Abuse Analysis - These items actually include "yes/no" responses. In the COT analysis for this item, the number of "yes" responses is compared from the most recent interview to the initial interview. Results are then categorized across an increased/decreased paradigm similar to the other items in this category. Thus, the child and adolescent substance use analysis is included in Category B even though the items do not have five possible response options.

- o Problems with School Attendance – These results are reported by combining the results from Question 32 ("In the past six months, have you had problems with school attendance?") and Question 33 ("In the past six months, would you say your problems with school attendance have increased, stayed the same, or decreased?" However, whereas the outcome category for all other Category B questions is derived from the responses given at two points in time, for this variation the respondent assesses the extent to which his/her problems have increased, stayed the same, or decreased.

Increased/Decreased Analysis Example

To illustrate how Category B questions are analyzed, a satisfaction item will be used as the example. In the analysis, response options are assigned values of 1 to 3, with "1" assigned to "Not at all/A little bit," "2" assigned to "Somewhat," and "3" assigned to "Quite a bit/Very much."

The analysis is conducted by comparing the value for the initial interview to the most recent interview and classifying individuals into five outcome groups:

- "Increased" – item value at the initial interview was less than at the most recent interview.
- "No change – Quite a bit/Very much" – Item value at both the initial interview and the most recent interview was "3".
- "No change – Somewhat" – Item value at both the initial interview and the most recent interview was "2".
- "No change – A little bit/Not at all" – Item value at both the initial and the most recent interview was "1".
- "Decreased" – Item value at the initial interview was greater than at the most recent interview.

For example, if a client indicated that he was somewhat satisfied with his job during his initial interview and indicated that he was very much satisfied with his job during the most recent interview, he would be included in the "Increased" category. However, if he was quite a bit or very much satisfied at both interviews, then his interview pair would be included in the "No change – Quite a bit/Very much" group.

The analytic approach for three adult questionnaire items (satisfaction with living situation, recovery, and employment) was changed slightly in 2015. Small changes in satisfaction are no
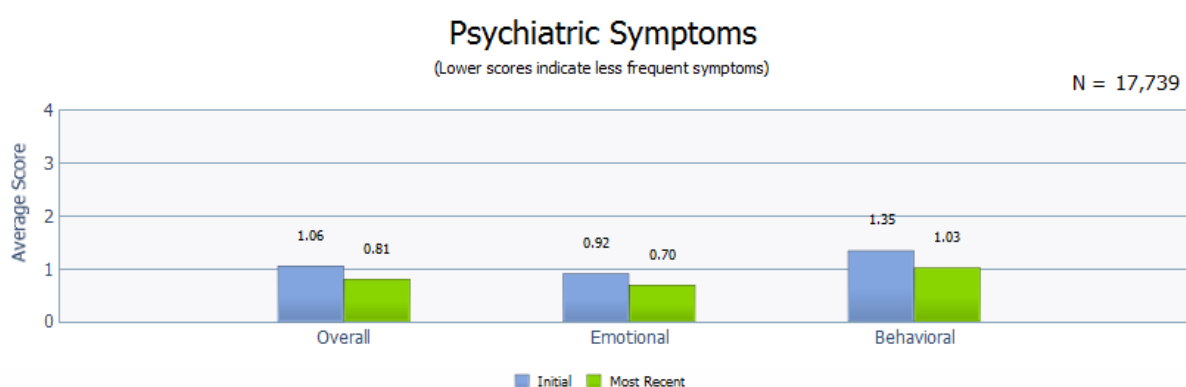
longer included as "increased" or decreased," but rather as "No Change." For example, a change from "Strongly agree" to "Agree" would have previously been designated as a "Decrease"; with the revised approach it is designated as "No Change – Strongly agree/agree". Likewise, a change from "Strongly disagree" to "Disagree" is now designated as "No Change – Strongly disagree/disagree". This analytic change was applied to all data displayed in the Datamart, past and present.

SUMMARY

- ➢ **Category B includes questions with five possible answer options (with two variations).**

- ➢ **The analysis is conducted by comparing the items' value (1 to 3) for the initial interview to the most recent one in such a way that indicates "no change", "increased" or "decreased" over time.**

- ➢ **There are two variations included in this category: child and adolescent substance use and problems with school attendance.**

Category C: Numerical Scale Scores

Category C analyses are for those COT response types that are for numerical scale scores. These include the psychiatric symptoms and recovery/resilience questions on both the adult and child questionnaires. For psychiatric symptoms, an overall score is calculated as well as subscale scores for each interview. For recovery or resilience, a single overall score is calculated. Then the average across the group of the overall scores (and subscale scores for psychiatric symptoms) are presented for the initial interview and most recent interview (see below).

Psychiatric Symptoms
(Lower scores indicate less frequent symptoms)

N = 17,739

	Overall	Emotional	Behavioral
Initial	1.06	0.92	1.35
Most Recent	0.81	0.70	1.03

Special Situations

New Items and Age Changes
When revisions were made to the OMS Questionnaires in both September 2009 and December 2014, new items were added and the age ranges for specific questions were modified. For new items, the response in the first OMS questionnaire after the change date is used as the initial response for that item. Similarly, for items affected by age range changes, the first OMS questionnaire after the child reaches the youngest age in the range is used as the initial interview response for that item. Analyses in the Datamart for Fiscal Year 2015 and later time periods will reflect the new age ranges.

Appendix A. COT Analysis Categories for Each OMS Question

Adult Questionnaire

Question # (12/13/14 version)	Question	Analytic Approach	New Questions Added after Sept 2009	New Questions Added/deleted after 12/13/14
2	Living Satisfaction	Increased/Decreased		
3	Homelessness	Yes/No		
4-8	Recovery	Numerical Scale Scores		added
9-13	Functioning	Increased/Decreased		
14	Recovery Satisfaction	Increased/Decreased	added	
15-38	Psychiatric Symptoms	Numerical Scale Scores		
35-38	Substance Use	Increased/Decreased		
39	Arrests	Yes/No		
40	Jail	Yes/No	added	
	Negative Encounters	Increased/Decreased		deleted
41-42	Employed 6 M	Yes/No		
44	Job Satisfaction	Increased/Decreased		
45	Smoking	Yes/No	added	
46	Cigarettes Per Day	Increased/Decreased	added	
48	General Health	Increased/Decreased	added	

(Child and Adolescent Questionnaire items on next page)

Child and Adolescent Questionnaire

Question # (12/13/14 version)	Question	Analytic Approach	Age at which question asked (12/13/14 version)	New Questions added after Sept 2009	Questions added or deleted after 12/13/14
2	Homelessness	Yes/No	6		
3-23	Psychiatric Symptoms	Numerical Scale Score	6		
24-28, 30	Functioning	Increased/Decreased	6		
	Social Connectedness	Increased/Decreased			deleted
32-33	School Attendance Problems	Increased/Decreased	6		
34	School Suspensions	Yes/No	6	added	
35	School Expulsions	Yes/No	6	added	
	Negative Encounters	Increased/Decreased			deleted
36	General Health	Increased/Decreased	6	added	
37	Smoking	Yes/No	11	added	
38	Cigarettes Per Day	Increased/Decreased	11	added	
	Living Satisfaction	Increased/Decreased			deleted
40	Arrests	Yes/No	11		
41-49	Substance Use	Increased/Decreased	11	added	items added
50-51	Employment	Yes/No	14		
52-56	Resilience	Numerical Scale Score	14		added